Base rate neglect for the wealth of populations

Diemo Urbig

Humboldt-Universität zu Berlin School of Business and Economics and Department of Computer Science

Abstract. Base rate neglect has been shown to be a very robust bias in human information processing. It has also been show to be ecologically rational, more precisely, the bias may be present since it does not make individuals significantly worse off in their environments. However, when arguing about base rate neglect usually isolated individuals are considered. I complement these results by showing that in many scenarios of social learning a base rate neglect can increase a population's wealth. I thereby strengthen the argument that the presence of base rate neglect can be evolutionary stable. I pick up a model of social learning that has been used to demonstrate the potential benefits of overconfidence. Individuals are confronted with a safe and a risky option with a high and low payoff. They receive a private signal about the risky option's outcome, they decide in an exogenously given sequence, and they observe decisions of preceding individuals. I first deviate from the original model by incorporating base rates that differ from fifty-fifty and show that under weighting this base rate is for the wealth of a population. In a second step I analyze how the optimal base rate neglect reacts to changes in payoffs that are associated with the safe and risky options. I show that for large set of settings under weighting the base rate is still positive, but for a smaller subset it decreases wealth instead.

Keywords: cognitive biases, base rate neglect, social learning, information cascades, ecological rationality

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Address for corespondance: Diemo Urbig, Institute for Entrepreneurial Studies and Innovation Management, School of Business and Economics, Humboldt-Universität zu Berlin, Unter den Linden 6, 10099 Berlin, Germany, urbig@diemo.de